

**UNITED STATES DISTRICT COURT FOR THE  
DISTRICT OF MASSACHUSETTS**

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ADVANCED TECHNOLOGY )  
CORPORATION, INC. )  
                        )  
*Plaintiff,*           )  
                        )  
v.                       )      CIVIL ACTION NO. 1:12-cv-10171-JLT  
                        )  
INSTRON, INC.           )  
                        )  
                        )  
*Defendant.*           )  
                        )  
                        )  
\_\_\_\_\_ )

**SECOND AMENDED COMPLAINT**

Plaintiff Advanced Technology Corporation, Inc. (“ATC”), through its attorney, Timothy Cornell, based upon personal knowledge, investigation, information and belief, brings this action for damages, injunctive relief and costs of suit under the federal and state and common law against Defendant Instron, Inc., and alleges as follows:

**NATURE OF THE ACTION**

1. By the means described in detail below, Instron has disparaged and defamed ATC and its key technology, Automated Ball Indentation (“ABI”) in order to confuse ATC’s customers and potential customers and thereby damage its business.
2. In doing so, Instron has committed common law commercial disparagement, and defamation, and injurious falsehood.

**JURISDICTION AND VENUE**

3. The Court has jurisdiction over the state and common law claims in this matter under 28 U.S.C. §§ 1332 and 1337(d) (diversity), in that this is a case with a Defendant which is a citizen of a state different from that of the Plaintiff and in which the amount in controversy exceeds the sum of \$1 million, exclusive of interest.
4. Venue is appropriate under 15 U.S.C. § 1711 because the Defendant's actions had the intended effect of causing injury to citizens throughout the United States, including those in this district.

**THE PARTIES**

5. Plaintiff ATC is a Tennessee corporation with a principal place of business located in Oak Ridge. Its main business is the Stress-Strain Microprobe® System, which adapts the ABI technique to bridges, pipelines, petrochemical storage tanks and other vessels, US Army tank gun tubes, NASA components, nuclear weapon components, nuclear pressure vessel metals, and other areas where metals undergo stress. Fahmy Haggag, president of ATC, has been a member of ASTM [International \(ASTM\)](#) since 1985.
6. Defendant Instron (MA) is a subsidiary of Illinois Tool Works, Inc., a public company based in Glenview, Illinois. Instron Corporation is headquartered at 825 University Avenue, Norwood, Massachusetts 020062, and is a manufacturer of tensile and hardness testing machines. Instron employees are members of ASTM, as well as voting members of committees E28 and E8. Each manufacturer/vendor can have multiple members but must designate one voter per committee or subcommittee. Wilson Hardness is a subsidiary of Instron based at 825 University Avenue, Norwood. Edward Tobolski is retired from Wilson Hardness and past chair of the E28 committee of ASTM. He has held officer positions in this committee since 1997. On information and belief, the Instron activities described below were almost entirely committed at Instron's offices in Norwood,

Massachusetts.

## **FACTS**

### **ATC's Haggag Creates Innovation in Tensile Strength Measurement**

7. In the late 1980s, Fahmy Haggag, a renowned materials engineer based in Oak Ridge, Tennessee, developed a novel test method, automated ball indentation (“ABI”), to measure, non-destructively, tensile properties (yield strength, ultimate strength, stress-strain curve, ductility), and fracture toughness of materials and components on site without the need to cease operation and cut test samples. Although the technology is well suited for many applications, it is especially beneficial to the pipeline industry since stopping product transmission and cutting test samples from a pipe are extremely expensive to pipeline operators and pose a major inconvenience for their customers.
8. Haggag patented the equipment that performs ABI in 1989, U.S. Patent Number 4852397, and developed the ABI test procedure and data analysis and started ATC the same year to commercialize the ABI technology. The ABI test has two major advantages over the destructive tensile test: (a) nondestructive (testing of in-service oil and gas pipelines without cutting a pipe section) and (b) fast (a single ABI test takes less than two minutes).
9. The nondestructive ABI technique is relatively simple, can be performed in minutes by one person on components in the field, and is much more accurate than conventional testing. Additionally the ABI equipment can be reconfigured to perform conventional/destructive tensile and fracture toughness testing.
10. The value of the process was widely recognized by engineers in the field. In 1996, *R&D* magazine hailed the development of the Portable/In-Situ Stress-Strain Microprobe (“SSM”) system as one of the “100 Most Technologically Significantly New Products of the Year.”
11. Several organizations were also impressed with the technology but stated that in order to accept ABI

test results, they would require an ASTM standard for the technique. These organizations include U.S. Department of Energy, U.S. Department of Transportation (Pipeline and Hazardous Materials Safety Administration, PHMSA), and several pipeline operators.

12. As a result, ATC ~~did not start~~ed any the ASTM ABI standardization activity ~~when until~~ it was requested by the U.S. Department of Energy as a task in ATC's Small Business Innovation Research, Phase II Report Number DOE/ER/82115-1 (06/17/97 - 06/16/99), Award Number DE-FG02-96ER82115, "Nondestructive and Localized Measurements of Stress-Strain Curves and Fracture Toughness of Ferritic Steels at Various Temperatures using Innovative Stress-Strain Microprobe<sup>TM</sup> Technology."

**The ABI Method Threatens Instron's Business in Conventional Destructive Tensile Testing Equipment**

13. ATC's innovative technique threatened to disrupt Instron's established business in the tensile-testing equipment market.
14. Instron is a key player in the destructive tensile testing market and has built its reputation on the conventional form of tensile testing (ASTM Standard Test Method E8).
15. The conventional tensile test method requires the extraction of a section of the pipe for machining a specimen for destructive testing. Because the pipe must be shut down to extract a section, the conventional method is significantly more expensive.
16. The localized capability of the ABI technique makes it more accurate and suitable for seam and girth welds. Since the ABI technique~~s~~ can replace the destructive testing and is more efficient, the test would greatly reduce the sales of destructive testing machines.
17. For example, an employee of one Canadian steel manufacturer told ATC that they used numerous Instron tensile testing machines to destructively test a large number of tensile specimens to certify

their steels products before shipment to their customers. He said if they used a few ABI test machines, they would not need most of the Instron machines and they would save at least \$10 million per year by eliminating the machining cost of specimens.

18. Despite the cost savings, Instron has not been ~~not~~ interested in adopting the ABI technique. ~~because~~   
~~a~~An ABI system, in addition to performing the nondestructive ABI test, also performs the destructive tensile and fracture toughness testing of any universal testing machine as sold by Instron. Because ~~the~~ Instron's larger market is in conventional destructive machines, even if Instron adopted the ABI technique and sold ABI testing equipment, the change would significantly reduce the bulk of its profits.

19. In response, ATC's competitors, including Instron, started referring to the ABI testers as "hardness testers" to denigrate the technology; although the vendors knew that a hardness tester could not perform a destructive tensile test or produce yield strength and a stress-strain curve.

20. To stave off confusion, ATC changed the name from "ABI Tester" to Stress-Strain Microprobe in 1993. Haggag registered the trademark for the equipment that performs the ABI technique ~~-as the~~ Stress-Strain Microprobe® (SSM) System (Trademark 2,888,489, Registered on September 28, 2004). The test name "Automated Ball Indentation" has never been changed and to this day, the SSM is the only equipment that employs ABI technique.

20.21. Instron used its employees' positions on key national and international standards organizations to promote measures that would discredit the ABI technique and draw allies into their scheme.

21.22. One of the key standards organizations is ~~the American Society for Testing and Materials, or~~ ASTM International. ASTM adopts voluntary standards for industry to follow. These standards are based on peer review and consensus.

22.23. Haggag is an active member of the following ASTM committees and subcommittees: E8 Fatigue

and Fracture, E8.04 Structural Applications, E8.07 Fracture Mechanics, E10 Nuclear Technology and Applications, E10.02 Nuclear Structural Materials, and E28 Mechanical Testing, E28.02 Ductility and Formability, E28.04 Uniaxial Testing, and E28.06 Indentation Hardness, E28.15 Automated Testing, E28.94 US ISO TAG/TC 164 Mechanical Testing. Also relevant is the A1 Committee on Steel, Stainless Steel and Related Alloys Haggag is also a member of ASM International.

23.24. In October 1997, Edward Tobolski, Instron employee, faxed Haggag a letter that stated he believed the “instrumented indentation task” he was chairing should focus on arriving at a “procedure that defines the tolerances for the test forces, depth measurements, indenters, machine compliance, calibration, etc., but does not specify how the data is manipulated to obtain test results. We would leave that for future work.” (emphasis added)

24.25. In the letter, thus, Tobolski revealed that his intent was to identify ABI technique with instrumented indentation testing (“IIT”).

25.26. IIT is an unrelated technique adopted by Instron, MTS, and other hardness equipment vendors at about the same time that ABI was coming onto the market.

26.27. The IIT technique is commonly known as nano-indentation hardness and is used for testing ~~of~~ thin coatings and ~~-~~ceramics of laboratory specimens using a pyramid indenter. The definition of “nano” limits the tested volume to a portion of single grain of metallic materials and the maximum indentation load to less than three pounds. Tensile and fracture toughness properties of metallic materials cannot be determined from a fraction of a single grain. Nano-indentation testing cannot be performed in the field on any pipeline and cannot produce yield strength or other tensile or fracture toughness properties.

27.28. In contrast, the ABI test technique is a macroscopic (numerous grains) test that utilizes exclusively a ball indenter to apply progressively increasing loads with intermediate partial unloadings

until the final-depth/strain is reached then the ball indenter is fully removed. The ABI test utilizes mathematical equations to determine the yield strength and the stress-strain curve of metallic test samples or structures (in the field). The ABI test is fully automated, using a computer, a data acquisition system, and a motor capable of applying loads up to 1000 pounds. The ABI test equipment can also perform the conventional destructive tensile test (just like any tensile testing machine).

Unlike the IIT of Instron, MTS, etc., the ABI test is not a test for hardness.

28.29. ATC's Standard ABI Test Method is published in the 2007 Pipeline Research Council

International (PRCI) Report L52280.

29.30. In short, the IIT technique is by no means interchangeable with the ABI technique and the IIT

technique cannot produce any of the ABI test results. Instron and the other IIT equipment producers have failed to prove that they can produce the same results as the ABI test method as they claim.

30.31. By claiming ABI is a subset of or equivalent to IIT, Instron sought to capture ABI's unique

measurement capabilities in order to sell more of their equipment that could not actually perform the ABI technique.

31. For example, in an October 2003 article in *ASTM Standardization News*, Tobolski stated that any

indentation test technique that collects load versus displacement data must be called an IIT technique and must refer to the IIT Draft Practice. This article states that "other properties such as yield stress and strain-hardening characteristics of metals can also be observed, however, the analyses for those properties have not been developed to the point that they are widely accepted."

Tobolski's statements are false and intended to disparage the ABI technique since the capabilities of the ABI technique are proven.

32.

32.33. In a May 11, 2006 email obtained by ATC in 2012 through the U.S. Freedom of Information Act,

5 U.S.C. § 552, Tobolski disclosed to Earl Ruth (E28 committee) and others (E10 committee) that he wanted to retain the ABI standard in its current E28 committee (opposing transfer of ABI from E28 to E10) as a way to “*force Mr. Haggag to make most of the changes that some of us want.*” (italics added) Ex. A. It is the usual and customary practice under ASTM and ISO to name test methods after the inventor or by the name established in literature. Id. at ¶ 34. Tobolski has participated in numerous standards named after their inventors (Brinnell, Rockwell, Vickers, etc.). Id. The ABI name was assigned by the inventor Haggag and established in numerous ASTM publications since 1990 (ASTM STP 1092). Id.

33.34. Again, in 2006 - immediately after the ABI E28.06.14 task was disbanded by Ruth’s vote - Tobolski sent Haggag an e-mail message that the ABI draft standard could yet be salvaged if Tobolski took over the project and made several changes.

34.35. Among other things, Tobolski wanted to change the name “ABI” to “IIT,” delete the precision values from the ABI round robin, and replace the analytical equations with a reference to the vendor’s manual. Haggag refused Tobolski’s proposal because he believed this change would render the standard useless and discredit the ABI technique. It is the usual and customary practice under ASTM and ISO to name test methods after the inventor or by the name established in literature. Tobolski has participated in numerous standards named after their inventors (Brinnell, Rockwell, Vickers, etc.). The ABI name was assigned by the inventor Haggag and established in numerous ASTM publications since 1990 (ASTM STP 1092).

35.36. Tobolski called Haggag in 2006 and told him that he would get an IIT issued standard under ISO ~~for the Korean equipment since at~~ the 2006 meeting ~~that~~ was being held in Seoul, Korea.

36.37. Tobolski co-authored -a document ~~being~~-submitted for ISO Draft Standard balloting in 2006, but it failed when it was balloted. Ex. B Tobolski’s efforts resulted -in the 2008 publication -of -an ISO

Technical Report, (ISO/TR 29381), with the intent to turn it into a standard later. Ex. B

37.38. In 2009, Instron continued its campaign to rename Haggag's ABI technique. Instron agents Tobolski and Bill O'Neill co-authored the article "Advances in Hardness Testing" in the February 2009 issue of *Advanced Materials and Processes* (AM&P). Ex. C

38.39. In that article, Tobolski again renamed Haggag's innovative 1989 ABI test method based on its partial unloading technique to an erroneous "Representative Stress and Strain (RSS) method." Without any reference to the ABI's partial unloading technique, Tobolski stated that the RSS is a part of Instrumented Indentation Testing (IIT) described in the ISO Report ISO/TR 29381 (October 2008).

*The earlier ASTM IIT Practice Standard "E2546 of 2007" does not include any of Haggag's innovative partial-unloading technique or any stress-strain test method.* (italics added)

39.40. The first paragraph and the figure on page 31 of the article obliquely describe the ABI technique including its essential/innovative partial unloading technique without reference to Haggag's work (e.g., US Patent 4,852,397 and a previous AM&P September 2006 article). The AM&P monthly magazine is read by more than 36,000 members while the ISO report is only available for purchase from ISO headquarters in Europe. The Defendant Instron continued its ~~conspiracy and~~ disparagement against ATC's ABI technique far beyond ASTM and ISO by publicizing the misleading ISO report in AM&P magazine.

40.41. As soon as ATC became aware of the February 2009 AM&P article, Haggag sent a Cease and Desist letter dated April 2, 2009, to James Wooten, of Illinois Tool Works, owner of Instron. The letter pointed out the disparagement and deception included in the article and requested a public correction in the same magazine. Haggag reminded Wooten that ATC's Standard ABI Test Method was published in the 2007 PRCI Report L52280. Wooten did not respond. Ex. D

41.42. Despite Haggag's 2009 warning, in 2011, Tobolski, acting as agent for Instron, endorsed a 5-

year systematic review of the ISO/TR 29381 technical report even though the ISO report was less than three years old. Doing so made it appear that this misleading report was- an accepted ISO standard.

Such a systematic review is required only for issued standards and is not required for any report. Ex. E 42.43. The misleading ISO Technical Report ISO/TR 29381 discussed above has been used to discredit and disparage the ABI technique.

43.44. On at least three occasions, ATC has lost business as a result of the Defendant's continuing conspiracy disparagement and defamation.

44.45. For instance, Vectren Energy, in 2009, requested a quotation for ABI testing on 317 miles of undocumented pipelines in Indiana and Kentucky worth approximately \$5M. In an email, John Cline the engineer with Vectren said they would not continue with the work because of the ISO/TR 29381. He was confused and thought the Report, ISO/TR 29831, was an ISO Standard and that IIT was the same as ABI.

45.46. In 2008, Cameron Ltd., a United Kingdom company, requested a quotation for ABI testing for its client Chevron Pipeline Company. Chevron sent a document that stated two companies perform ABI testing and required the testing be run according to the “ISO Standard ISO/TR 29381.” ATC replied that it was the only company that performed ABI testing, and it was vastly different from IIT. ATC also informed Cameron and Chevron that ISO/TR 29381 was only a Technical Report and not an accepted ISO standard.

46.47. In 2013, Pacific Gas & Electric, Co. (PG&E), a California company and ATC customer for two years, bought IIT equipment that it believed was similar to ATC’s ABI test equipment. ATC lost more than \$1,000,000 in expected revenue in 2013. ATC believes many other companies have been similarly deceived by the Instron’s actions.

47. ~~ATC believes many other companies have been similarly deceived by the Defendants actions.~~

**FIRST CAUSE OF ACTION**

Common Law Commercial Disparagement

48. Paragraphs 1 through 48 are incorporated here as if stated in full.
49. As described here, the Defendants have made a series of false statements or implied false statements regarding the ABI technique that have continued to 20142.
50. These statements were made with malice against ATC.
51. As a result of the malicious and false statements, ATC has sustained special damages in the form of lost earnings. ATC lost SSM/ABI equipment sales and testing services sales, e.g., to PG&E in 2012 and 2013, and Vectren Energy in 2009.

**SECOND CAUSE OF ACTION**

**COMMON LAW DEFAMATION**

52. Paragraphs 1 through 52 are incorporated here as if stated in full.
53. As described here, the Defendants have made a series of false statements or implied false statements regarding the ABI technique that have continued to 20142.
54. These statements were made with malice against ATC.
55. As a result of the malicious and false statements, ATC has sustained special damages in the form of lost earnings. ATC lost SSM/ABI equipment sales and testing services sales, e.g., to PG&E in 2012 and 2013, and Vectren Energy in 2009.

**THIRD CAUSE OF ACTION**

**COMMON LAW INJURIOUS FALSEHOOD**

56. Paragraphs 1 through 56 are incorporated as if fully stated herein.
57. Instron intended to publish statements that resulted in the harm to the interests of ATC.
58. The harm that was intended has a pecuniary value.

59. Instron recognized that publication of the statements were likely to result in such harm.
60. Instron was either aware that the statements were false or acted in reckless disregard of their truth or falsity.
61. As a result of these statements, ATC has sustained real damages in the form of lost earnings.

WHEREFORE, the plaintiff prays that this Court:

1. Enter judgment for Plaintiff ATC against the Defendant Instron;
2. Award damages to ATC in an amount to be determined by the Court;
3. Award interest, costs, and attorneys' fees to ATC;
4. Enjoin the Defendant to publish a public article in *AM&P Magazine* to correct the 2009 *AM&P* article by specifically stating that Haggag is the original inventor of the "partial-unloading technique" of his ABI test method of U.S. Patent 4,852, 397 (Aug. 1989) and that the ABI Test Method is different from the IIT Test Method published in ASTM E2546-07, ISO 14577, and ISO/TR 29381-;
5. Award such other relief as this Court deems just and proper.

Respectfully submitted,

/s/ Timothy Cornell

Etna, NH  
March 25, 2012

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**CERTIFICATION OF SERVICE**

I certify that a true and correct copy of this document has been filed electronically through ECF, that it will be available for viewing and downloading electronically, and that service will be made to Plaintiff's Counsel through the ECF system on March 25, 2013.

Respectfully submitted,

/s/ Timothy Cornell

Etna, NH  
March 25, 2012

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